

WHAT IS CLAIMED IS:

1. An infusion device, comprising.  
a casing comprising an external wall and a plurality of internal adjoining housings, including a first housing enclosing a liquid reservoir and a drive mechanism;  
an electronics assembly and a pump assembly provided in a second housing for controlling the drive mechanism to dispense the liquid from the reservoir according to a selected pattern;  
a battery provided in a third housing; and  
a primary vent provided for venting the infusion device to atmosphere, said primary vent comprising a hydrophobic barrier allowing passage of gas therethrough while preventing passage of liquid therethrough; and  
at least one secondary vent provided between selected ones of said housings; said at least one secondary vent including a hydrophobic barrier allowing passage of gas therethrough while preventing passage of liquid therethrough.
2. The infusion device of claim 1, wherein said liquid reservoir contains insulin.
3. The infusion device of claim 1, wherein said liquid reservoir defines a syringe, comprising a generally tubular liquid storage section and a movable plunger.
4. The infusion device of claim 1, wherein said drive mechanism comprises a lead screw and a drive nut.

5. The infusion device of claim 1 wherein said second housing is vented to atmosphere via said a secondary vent and at least one of said first and third housings.

6. The infusion device of claim 1 wherein said first housing comprises means for a user to access said first housing.

7. The infusion device of claim 1, wherein said third housing comprises means for a user to access said third housing.

8. The infusion device of claim 1, wherein said second housing is inaccessible by a user.

9. The infusion device of claim 1, wherein said hydrophobic barriers comprise membranes, each said membrane having a pre-selected water entry pressure.

10. The infusion device of claim 9, wherein said pre-selected water entry pressure is higher than a water pressure of a selected depth of water.

11. The infusion device of claim 9, wherein said pre-selected water entry pressure is approximately 10 psi to approximately 15 psi.

12. The infusion device of claim 1, wherein said casing is portable.

13. The infusion device of claim 1, wherein said liquid reservoir is refillable.

14. The infusion device of claim 1, wherein said liquid reservoir is replaceable.

15. The infusion device of claim 1, wherein said casing is configured to be concealed on a user.

16. The infusion device of claim 1, wherein said at least one secondary vent is provided between said second housing and at least one of said first and third housings.

17. The infusion device of claim 1, wherein said drive mechanism extends from said first housing to said second housing via an opening comprising a seal.

18. The infusion device of claim 1, wherein said first, second, and third housings are hermetically sealed from one another.

19. A casing for an external infusion pump, comprising:

an outer wall;

a reservoir housing configured to enclose a liquid reservoir and a drive mechanism.

an internal electronics and mechanical housing configured to enclose pump components and an electronic control assembly;

a battery housing configured to enclose at least one battery;

a plurality of primary vents for venting the casing to atmosphere; and

at least one secondary vent provided between said electronics and mechanical housing and at least one of said reservoir and battery housings.

20. The casing of claim 19, wherein said primary vents and at least one secondary vent each contain a hydrophobic barrier allowing air passage therethrough while preventing passage of liquid therethrough.

21. The casing of claim 19, wherein said reservoir housing includes a means for a user to access said reservoir housing.

22. The casing of claim 19, wherein said battery housing includes a means for a user to access said battery housing.

23. The casing of claim 19, wherein said electronics and mechanical housing is inaccessible by a user.

24. The casing of claim 19, wherein said external wall is configured to be portable.

25. The casing of claim 24, wherein said external wall is configured to be concealed on a user.

26. The casing of claim 19, wherein said electronics and mechanical housing is vented to atmosphere via said at least one secondary vent and at least of said reservoir and battery housings.

27. The casing of claim 19, wherein said vents include a hydrophobic membrane having a pre-selected water entry pressure.

28. The casing of claim 27, wherein said pre-selected water entry pressure is higher than a water pressure at a selected depth of water.

29. The casing of claim 27, wherein said pre-selected water entry pressure is between about 10 psi and about 15 psi.

30. The casing of claim 27, wherein said hydrophobic membrane includes a pre-selected air flow rate.

31. The casing of claim 19, wherein said reservoir housing is defined by an internal wall housing an aperture configured to pass said drive mechanism therethrough, and sealed by a seal.

32. The casing of claim 19, wherein said reservoir housing, said electronics and mechanical housing, said battery housing, are hermetically sealed from one another.